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WESTERMAN, HATTORI, DANIELS & ADRIAN, LLP
1250 CONNECTICUT AVENUE, NW
SUITE 700
WASHINGTON, DC 20036

EXAMINER	
HON, SOW FUN	

ART UNIT	PAPER NUMBER
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/532,059	Applicant(s) HIRAI ET AL.	
	Examiner SOPHIE HON	Art Unit 1794	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE _3_ MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on _16 July 2008_.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) _1,3-10,12-15 and 17-29_ is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) _1,3-10,12-15 and 17-29_ is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 7/16/08 has been entered.

Response to Amendment

Withdrawn Rejections

2. The 35 U.S.C. 112, 2nd paragraph rejection of claims 12-15 is withdrawn due to Applicant's amendment dated 7/16/08.

3. The 35 U.S.C. 102(b) and 103(a) rejections of claims 1, 3, 8-10, 12, 17-23, 25-26, 28 over Land as the primary reference are withdrawn due to Applicant's amendment dated 7/16/08.

4. The 35 U.S.C. 102(e) and 103(a) rejections of claims 4-10, 12-15, 24-25, 27-28 over Hikmet as the primary reference are withdrawn due to Applicant's amendment dated 7/16/08.

New Rejections

Claim Objections

5. Claims 12, 14 are objected to under 37 CFR 1.75(c), as being of improper dependent form for failing to further limit the subject matter of a previous claim. Applicant is required to cancel the claim(s), or amend the claim(s) to place the claim(s) in proper dependent form, or rewrite the claim(s) in independent form. The limitations of “uniaxially stretched” and “uniaxially aligned” are already present in the limitation of “uniaxial birefringence due to uniaxial stretching” recited in parent claim 8.

Claim Rejections - 35 USC § 112

The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

6. Claims 8-10, 12-15, 25, 28 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. A broad range or limitation together with a narrow range or limitation that falls within the broad range or limitation (in the same claim) is considered indefinite, since the resulting claim does not clearly set forth the metes and bounds of the patent protection desired. See MPEP § 2173.05(c). Note the explanation given by the Board of Patent Appeals and Interferences in *Ex parte Wu*, 10 USPQ2d 2031, 2033 (Bd. Pat. App. & Inter. 1989), as to where broad language is followed by "such as" and then narrow language. The Board stated that this can render

a claim indefinite by raising a question or doubt as to whether the feature introduced by such language is (a) merely exemplary of the remainder of the claim, and therefore not required, or (b) a required feature of the claims. Note also, for example, the decisions of *Ex parte Steigewald*, 131 USPQ 74 (Bd. App. 1961); *Ex parte Hall*, 83 USPQ 38 (Bd. App. 1948); and *Ex parte Hasche*, 86 USPQ 481 (Bd. App. 1949).

In the present instance, independent claim 8 recites the broad recitation of “an organic matrix”, and the claim also recites “the translucent polymer” which is the narrower statement of the range/limitation.

Claim Rejections - 35 USC § 103

7. Claims 1, 3, 8-10, 12, 17-18, 26, 28-29 are rejected under 35 U.S.C. 103(a) as being unpatentable over Land (US 2,454,515) in view of Kawazu (US 20020186469).

Regarding claim 1, Land teaches a polarizer composed of a film comprising a structure in which fine metallic particles (finely divided polarizing agent, column 10, lines 69-71, colloidal asymmetric metal, column 11, lines 10-13) are dispersed in a polymer matrix (column 10, lines 13-72), where the polymer forming the polymer matrix is a cellulose acetate (column 2, lines 46-49) that is disclosed by Applicant as being one of the translucent polymers having a light transmittance within the range of 88% or more when measured thereof with a thickness of 1 mm (cellulose-based resin, page 17, first paragraph) and has uniaxial birefringence in the film plane (plane polarizing film, oriented with the long axis of the particles in substantial parallelism with the direction in which said polymer is oriented, column 10, lines 67-74). Land teaches that a domain is

formed with fine metallic particles after the film is immersed in a metallic salt solution, and the metallic salt is then converted to metallic particles (reduction of the salt, column 7, lines 47-52), wherein the film is uniaxially stretched only after conversion of the metallic salt to fine metallic particles (reducing the salt to a metal and stretching the sheet, column 7, lines 47-52, uniaxial, column 3, lines 25-40) which means that the metallic particles have a substantially spherical shape having been formed in an unoriented matrix. Land teaches that the metallic salt can be either gold chloride or silver nitrate (column 7, lines 25-40) which upon reduction is converted to the fine gold or silver particles. Land fails to disclose the average particle diameter and aspect ratio of the metallic particles.

However, Kawazu teaches a working polarizer (polarizing element, [0097], Example 1, [0098]) where metallic salts such as gold salt is reduced within the matrix to form fine gold metallic particles ([0100, 0098]) with an average particle diameter of 6 nm ([0101]), which is within the claimed range of 100 nm or less and an aspect ratio (a ratio of maximum length/ minimum length) of 1.2 (1:1.2, [0103]) which is within the claimed range of less than 1.5, for the purpose of providing the desired polarizing properties.

Therefore, since Land is silent regarding the average particle diameter and aspect ratio of the metallic particles, it would have been necessary and hence obvious to have looked to the prior art for suitable ones. As such, it would have been obvious to one of ordinary skill in the art at the time the invention was made, to have provided conditions of reduction of the gold or silver salts in the manufacture of the polarizer of Land, to form fine gold or silver metallic particles with an average particle diameter that

is within the range of 100 nm or less, and an aspect ratio that is within the range of less than 1.5, in order to obtain the desired polarizing properties, as taught by Kawazu.

Regarding claim 3, Land fails to teach the step of forming a film with a mixed solution obtained by dispersing fine metallic particles in a solution containing a translucent polymer having a light transmittance of 88% or more when measured thereof with a thickness of 1 mm.

However, the generic step of forming a film from a mixed solution obtained by dispersing particles in a solution containing the matrix material is a step that is notoriously well known to one of ordinary skill in the art, used for the purpose of forming very thin film composites.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made, to have used a step of forming a film with a mixed solution obtained by dispersing the fine metallic particles in a solution containing the translucent polymer, as part of an alternate fabrication method for the polarizer film of Land, in order to form a very thin film polarizer composite, as is well known in the art.

Regarding claim 8, Land teaches a polarizer composed of a film in which fine metallic particles (finely divided polarizing agent, column 10, lines 69-71, colloidal asymmetric metal, column 11, lines 10-13) are dispersed in an organic polymer matrix (column 10, lines 13-72), having a uniaxial birefringence in the film plane (plane polarizing film, oriented with the long axis of the particles in substantial parallelism with the direction in which said polymer is oriented, column 10, lines 67-74) where the polymer forming the organic polymer matrix is a cellulose acetate (column 2, lines 46-

49) that is disclosed by Applicant as being a translucent polymer (cellulose-based resin, page 17, first paragraph). Land teaches that a domain is formed with fine metallic particles after the film is immersed in a metallic salt solution, and the metallic salt is then converted to metallic particles (reduction of the salt, column 7, lines 47-52), wherein the film is uniaxially stretched only after conversion of the metallic salt to fine metallic particles (reducing the salt to a metal and stretching the sheet, column 7, lines 47-52, uniaxial, column 3, lines 25-40) which means that the metallic particles have a substantially spherical shape having been formed in an unoriented matrix. Land teaches that the metallic salt can be either gold chloride or silver nitrate (column 7, lines 25-40) which upon reduction is converted to the fine gold or silver particles. Land fails to disclose the average particle diameter and aspect ratio of the metallic particles.

However, Kawazu teaches a working polarizer (polarizing element, [0097], Example 1, [0098]) where metallic salts such as gold salt is reduced within the matrix to form fine gold metallic particles ([0100, 0098]) with an average particle diameter of 6 nm ([0101]), which is within the claimed range of 100 nm or less and an aspect ratio (a ratio of maximum length/ minimum length) of 1.2 (1:1.2, [0103]) which is within the claimed range of less than 1.5, for the purpose of providing the desired polarizing properties.

Therefore, since Land is silent regarding the average particle diameter and aspect ratio of the gold or silver metallic particles, it would have been necessary and hence obvious to have looked to the prior art for suitable ones. As such, it would have been obvious to one of ordinary skill in the art at the time the invention was made, to have provided conditions of reduction of the gold or silver salts in the manufacture of the

polarizer of Land, to form fine gold or silver metallic particles with an average particle diameter that is within the range of 100 nm or less, and an aspect ratio that is within the range of less than 1.5, in order to obtain the desired polarizing properties, as taught by Kawazu.

Thus, although Land, as modified by Kawazu, fails to disclose that the polarizer has an absorption spectrum with an absorption peak at a given wavelength, measured when a polarized light is incident thereon, wherein if an azimuth of an incident polarization plane is altered relative to the polarizer, the absorption peak wavelength shifts in accordance with an alteration in the azimuth, these properties are presumed to be inherent since Land teaches the claimed polarizer, as described above. Where the claimed and prior art products are identical or substantially identical in structure and composition, or are produced by identical or substantially identical processes, a prima facie case of either anticipation or obviousness has been established, and the claimed properties are presumed to be inherent. See MPEP 2112.01. If there were to be any differences in structure or chemistry, these differences are presumed to be minor and obvious in the absence of evidence to the contrary.

Regarding claims 9-10, Land teaches a polarizer composed of a film in which fine metallic particles (finely divided polarizing agent, column 10, lines 69-71, colloidal asymmetric metal, column 11, lines 10-13) are dispersed in an organic matrix (column 10, lines 13-72), having a birefringence in the film plane (plane polarizing film, oriented with the long axis of the particles in substantial parallelism with the direction in which said polymer is oriented, column 10, lines 67-74), wherein the organic matrix is formed

with a polymer matrix (column 10, lines 13-72), a polymer forming the polymer matrix is a cellulose acetate (column 2, lines 46-49) that is disclosed by Applicant as being one of the translucent polymers having a light transmittance within the range of 88% or more when measured thereof with a thickness of 1 mm (cellulose-based resin, page 17, first paragraph), and the film is uniaxially stretched (column 2, lines 45-55, uniaxial, column 3, lines 38-42). Land teaches that a domain is formed with fine metallic particles after the film is immersed in a metallic salt solution, and the metallic salt is then converted to metallic particles (reduction of the salt, column 7, lines 47-52), wherein the film is uniaxially stretched only after conversion of the metallic salt to fine metallic particles (reducing the salt to a metal and stretching the sheet, column 7, lines 47-52, uniaxial, column 3, lines 25-40) which means that the metallic particles have a substantially spherical shape having been formed in an unoriented matrix. Land teaches that the metallic salt can be either gold chloride or silver nitrate (column 7, lines 25-40) which upon reduction is converted to the fine gold or silver metallic particles. Land fails to disclose the average particle diameter and aspect ratio of the metallic particles.

However, Kawazu teaches a working polarizer (polarizing element, [0097], Example 1, [0098]) where metallic salts such as gold salt is reduced within the matrix to form fine gold metallic particles ([0100, 0098]) with an average particle diameter of 6 nm ([0101]), which is within the claimed range of 100 nm or less and an aspect ratio (a ratio of maximum length/ minimum length) of 1.2 (1:1.2, [0103]) which is within the claimed range of less than 1.5, for the purpose of providing the desired polarizing properties.

Therefore, since Land is silent regarding the average particle diameter and aspect ratio of the gold or silver metallic particles, it would have been necessary and hence obvious to have looked to the prior art for suitable ones. As such, it would have been obvious to one of ordinary skill in the art at the time the invention was made, to have provided conditions of reduction of the gold or silver salts in the manufacture of the polarizer of Land, to form fine gold or silver metallic particles with an average particle diameter that is within the range of 100 nm or less, and an aspect ratio that is within the range of less than 1.5, in order to obtain the desired polarizing properties, as taught by Kawazu.

Thus, although Land, as modified by Kawazu, fails to disclose that the polarizer has an absorption spectrum with an absorption peak at a given wavelength, measured when a polarized light is incident thereon, wherein if an azimuth of an incident polarization plane is altered relative to the polarizer, the absorption peak wavelength shifts in accordance with an alteration in the azimuth; or more specifically, that if an azimuth of the incident polarization plane is 0 degrees when an absorption peak wavelength of an absorption spectrum that is measured is the longest wavelength, defined as $\lambda 1$, when the azimuth is gradually increased from 0 degrees, a value of the absorption peak wavelength shifts to the short wavelength side in accordance with the increase and when the azimuth is 90 degrees, a value of the absorption peak is the shortest wavelength, defined as $\lambda 2$, satisfying a relation of $(\lambda 1 - \lambda 2) = 10$ to 50 nm, these properties are presumed to be inherent since Land teaches the claimed polarizer, as described above. Where the claimed and prior art products are identical or

substantially identical in structure and composition, or are produced by identical or substantially identical processes, a prima facie case of either anticipation or obviousness has been established, and the claimed properties are presumed to be inherent. See MPEP 2112.01. If there were to be any differences in structure or chemistry, these differences are presumed to be minor and obvious in the absence of evidence to the contrary.

Regarding claim 12, Land teaches that the organic matrix is formed with a polymer matrix (column 10, lines 13-72), wherein a polymer forming the polymer matrix is a cellulose acetate (column 2, lines 46-49) that is disclosed by Applicant as being one of the translucent polymers having a light transmittance within the range of 88% or more when measured thereof with a thickness of 1 mm (cellulose-based resin, page 17, first paragraph), and the film is uniaxially stretched (column 2, lines 45-55, uniaxial, column 3, lines 38-42).

Regarding claims 17-18, Land teaches a polarizing plate, which is an optical film, in which a transparent protective layer is provided on at least one surface of the polarizer (to protect from contact with moisture by laminating it between plastic sheets, column 4, lines 49-52).

Regarding claims 26, 28, Land, as modified by Kawazu, teaches that the aspect ratio of the fine gold or silver metallic particles is 1.2, as discussed above, which means that the fine metallic particles are not aligned within the polymer matrix due to their substantial lack of sufficient uniaxial shape anisotropy, as defined in Applicant's specification (aspect ratio is less than 1.5, page 14).

Regarding claim 29, Land, as modified by Kawazu, teaches that the fine metallic particles have an average particle diameter of 6 nm and an aspect ratio of 1.2, as discussed above. In addition, Kawazu teaches another working polarizer where the fine gold metallic particles have an average particle diameter of 25 nm ([0141]) and an aspect ratio of 1.4 ([0143]), for the purpose of providing the desired polarization properties. The aspect ratio of 1.4 is very close to the aspect ratio of 1.3.

Therefore, in the absence of a showing otherwise, it would have been obvious to one of ordinary skill in the art at the time the invention was made, to have provided conditions of reduction of the gold or silver salts in the manufacture of the polarizer of Land, as modified by Kawazu, to form fine gold or silver metallic particles with an average particle diameter of 25 nm, and an aspect ratio of 1.3 which is between the aspect ratios of 1.2 and 1.4 taught by Kawazu, in order to obtain the desired polarizing properties.

8. Claims 19-23, 25 are rejected under 35 U.S.C. 103(a) as being unpatentable over Land in view of Kawazu, as applied to claims 1, 3, 8-10, 12, 17-18, 26, 28-29 above, and further in view of Oshima (US 4,268,127).

Regarding claims 19-22, Land, as modified by Kawazu, teaches the polarizing plate in which a transparent protective layer is provided on at least one surface of the polarizer film, as discussed above. Land fails to teach the polarizing plate as a laminate in an optical film with an additional function, or that the polarizing plate optical film containing the polarizer is disposed in an image display.

However, Oshima teaches that when a polarizing plate containing a polarizer is disposed in an image display (polarizer, column 1, lines 7-18), a light diffusing layer is laminated to the polarizing plate (a semi-transparent resin layer 101 composed of a polyester film 111 and light diffusing material 13 is bonded to polarizing layer 103 via adhesive layer, polarizing layer 103 composed of a polarizer element 131 and a protective coating 132, column 5, lines 35-47), for the purpose of providing the desired uniform polarized light (column 1, lines 55-57).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made, to have laminated the polarizing plate of Land, with a diffusing layer, and to have disposed the laminate in an image display, in order to provide the image display with the desired uniform polarized light, as taught by Oshima.

Regarding claims 23, 25, Land is silent regarding the content and hence amount of the fine metallic particles dispersed in the polymer matrix of the polarizer film.

However, Land teaches that the fine metallic particles provide the desired polarization of light (column 2, lines 5-10) while teaching that the polarizer transmits more than 75% of the polarized light (of one component of the incident beam, column 4, lines 1-5). This means that the content and hence amount of fine metallic particles dispersed in the matrix has to be within a certain range for the purpose of providing the desired balance of light polarization and polarized light transmission.

Oshima teaches that a content of fine metallic particles (metal powder, column 2, lines 65-68, particle diameter about 0.01 μ = 10 nm, column 3, lines 2-6) of about 0.3 to 30 parts by weight relative to 100 parts by weight of the matrix materials (mixed into the

synthetic resin, % by weight, column 3, lines 2-9), which overlaps the claimed range of 0.1 to 10 parts by weight, wherein the matrix materials are light transmissive (transparent synthetic resin, column 2, lines 63-65), provides a favorable polarizing efficiency (column 3, lines 5-15).

Therefore, since Land is silent regarding the content of the fine metallic particles dispersed in the matrix, it would have been necessary and hence obvious to have looked to the prior art for suitable amounts. As such, it would have been obvious to one of ordinary skill in the art at the time the invention was made, to have provided a content of fine metallic particles dispersed in the matrix of the polarizer of Land that is within the range of 0.1 to 10 parts by weight relative to 100 parts by weight of the matrix materials, in order to provide the desired balance of polarizing efficiency and polarized light transmission, as taught by Oshima.

9. Claims 4-10, 13-15, 27-28 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hikmet (US 6,833,166) in view of Kawazu (US 20020186469).

Regarding claim 4, Hikmet teaches a polarizer (column 5, line 67) in which fine metallic particles (free metal particles, column 5, lines 13-16, nanometer size, column 1, line 15) are dispersed in a matrix formed with a liquid crystalline material (acrylates C5A and C6M, column 5, lines 25-28, C5A and C6M, column 2, lines 17-27, Fig. 1). Hikmet teaches that a domain is formed with fine metallic particles, when the organic matrix is immersed in a dilute solution containing metal salt (3 wt.%, column 5, lines 49-55) and the metal salt is converted to insoluble free metallic particles (column 3, lines 50-51) which are of nanometer size small enough to be quantum dots (column 1, lines 14-20).

Hikmet fails to disclose the specific average particle diameter and aspect ratio of the metallic particles.

However, Kawazu teaches a working polarizer (polarizing element, [0097], Example 1, [0098]) where metallic salts such as gold salt is reduced within the matrix to form fine gold metallic particles ([0100, 0098]) with an average particle diameter of 6 nm ([0101]), which is within the claimed range of 100 nm or less and an aspect ratio (a ratio of maximum length/ minimum length) of 1.2 (1:1.2, [0103]) which is within the claimed range of less than 1.5, for the purpose of providing the desired polarizing properties.

Therefore, since Hikmet is silent regarding the specific average particle diameter and aspect ratio of the metallic particles, it would have been necessary and hence obvious to have looked to the prior art for suitable ones. As such, it would have been obvious to one of ordinary skill in the art at the time the invention was made, to have provided conditions of reduction of the gold or silver salts in the manufacture of the polarizer of Hikmet, to form fine gold or silver metallic particles with an average particle diameter that is within the range of 100 nm or less, and an aspect ratio that is within the range of less than 1.5, in order to obtain the desired polarizing properties, as taught by Kawazu.

Regarding claim 5, Hikmet teaches that the liquid crystalline material is uniaxially aligned (uniaxial orientation of the molecules induced, column 5, lines 25-30).

Regarding claim 6, Hikmet teaches that the liquid crystalline material is a liquid crystal polymer (polymerized film, column 5, lines 45-50).

Regarding claim 7, Hikmet teaches the polarizer film product in which the fine metal particles are dispersed in a matrix formed with the liquid crystalline material, as discussed above, which means that there is a fabrication method for the polarizer film product. Hikmet fails to teach a fabrication method of forming the polarizer that comprises the step of forming a film with a mixed solution obtained by dispersing fine metal particles in a solution containing liquid crystalline material.

However, the generic step of forming a film from a mixed solution obtained by dispersing particles in a solution containing the matrix material is a step that is notoriously well known to one of ordinary skill in the art, used for the purpose of forming very thin film composites.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made, to have used a step of forming a film with a mixed solution obtained by dispersing the fine metal particles in a solution containing the liquid crystalline material, as part of an alternate fabrication method for the polarizer film of Hikmet, in order to form a very thin film polarizer composite, as is well known in the art.

Regarding claim 8, Hikmet teaches a polarizer (column 5, line 67) composed of a film (polymerized film, column 5, lines 45-50) in which fine metallic particles (free metal particles, column 5, lines 13-16, nanometer size, column 1, line 15) are dispersed in an organic polymeric matrix having a birefringence in the film plane (in a mixture containing 10 wt.% of diacrylate C6M, the high birefringence is sustained upon polymerization, column 2, lines 55-57, acrylates C5A and C6M, column 5, lines 25-28) which is uniaxial due to the uniaxial stretching (uniaxial orientation of the molecules induced, column 5,

lines 25-30). Organic polymers are ordinarily translucent. Hikmet teaches that a domain is formed with fine metallic particles, when the organic matrix is immersed in a dilute solution containing metal salt (3 wt.%, column 5, lines 49-55) and the metal salt is converted to insoluble free metallic particles (column 3, lines 50-51) which are of nanometer size small enough to be quantum dots (column 1, lines 14-20). Hikmet fails to disclose the specific average particle diameter and aspect ratio of the metallic particles.

However, Kawazu teaches a working polarizer (polarizing element, [0097], Example 1, [0098]) where metallic salts such as gold salt is reduced within the matrix to form fine gold metallic particles ([0100, 0098]) with an average particle diameter of 6 nm ([0101]), which is within the claimed range of 100 nm or less and an aspect ratio (a ratio of maximum length/ minimum length) of 1.2 (1:1.2, [0103]) which is within the claimed range of less than 1.5, for the purpose of providing the desired polarizing properties.

Therefore, since Hikmet is silent regarding the specific average particle diameter and aspect ratio of the metallic particles, it would have been necessary and hence obvious to have looked to the prior art for suitable ones. As such, it would have been obvious to one of ordinary skill in the art at the time the invention was made, to have provided conditions of reduction of the gold or silver salts in the manufacture of the polarizer of Hikmet, to form fine gold or silver metallic particles with an average particle diameter that is within the range of 100 nm or less, and an aspect ratio that is within the range of less than 1.5, in order to obtain the desired polarizing properties, as taught by Kawazu.

Thus, although Hikmet fails to disclose that the polarizer has an absorption spectrum with an absorption peak at a given wavelength, measured when a polarized light is incident thereon, wherein if an azimuth of an incident polarization plane is altered relative to the polarizer, the absorption peak wavelength shifts in accordance with an alteration in the azimuth, these properties are presumed to be inherent since Land teaches the claimed polarizer, as described above. Where the claimed and prior art products are identical or substantially identical in structure and composition, or are produced by identical or substantially identical processes, a prima facie case of either anticipation or obviousness has been established, and the claimed properties are presumed to be inherent. See MPEP 2112.01. If there were to be any differences in structure or chemistry, these differences are presumed to be minor and obvious in the absence of evidence to the contrary.

Regarding claims 9-10, Hikmet teaches a polarizer (column 5, line 67) composed of a film (polymerized film, column 5, lines 45-50) in which fine metallic particles (free metal particles, column 5, lines 13-16, nanometer size, column 1, line 15) are dispersed in an organic matrix having a birefringence in the film plane (in a mixture containing 10 wt.% of diacrylate C6M, the high birefringence is sustained upon polymerization, column 2, lines 55-57, acrylates C5A and C6M, column 5, lines 25-28), wherein the organic matrix is formed with a liquid crystalline material (acrylates C5A and C6M, column 5, lines 25-28, C5A and C6M, column 2, lines 17-27, Fig. 1) which is a liquid crystal polymer (polymerized film, column 5, lines 45-50). Hikmet teaches that a domain is formed with fine metallic particles, when the organic matrix is immersed in a dilute

solution containing metal salt (3 wt.%, column 5, lines 49-55) and the metal salt is converted to insoluble free metallic particles (column 3, lines 50-51) which are of nanometer size small enough to be quantum dots (column 1, lines 14-20). Hikmet fails to disclose the specific average particle diameter and aspect ratio of the metallic particles.

However, Kawazu teaches a working polarizer (polarizing element, [0097], Example 1, [0098]) where metallic salts such as gold salt is reduced within the matrix to form fine gold metallic particles ([0100, 0098]) with an average particle diameter of 6 nm ([0101]), which is within the claimed range of 100 nm or less and an aspect ratio (a ratio of maximum length/ minimum length) of 1.2 (1:1.2, [0103]) which is within the claimed range of less than 1.5, for the purpose of providing the desired polarizing properties.

Therefore, since Hikmet is silent regarding the specific average particle diameter and aspect ratio of the metallic particles, it would have been necessary and hence obvious to have looked to the prior art for suitable ones. As such, it would have been obvious to one of ordinary skill in the art at the time the invention was made, to have provided conditions of reduction of the gold or silver salts in the manufacture of the polarizer of Hikmet, to form fine gold or silver metallic particles with an average particle diameter that is within the range of 100 nm or less, and an aspect ratio that is within the range of less than 1.5, in order to obtain the desired polarizing properties, as taught by Kawazu. Thus, although Hikmet fails to disclose that the polarizer has an absorption spectrum with an absorption peak at a given wavelength, measured when a polarized light is incident thereon, wherein if an azimuth of an incident polarization plane is altered

relative to the polarizer, the absorption peak wavelength shifts in accordance with an alteration in the azimuth; or more specifically, that if an azimuth of the incident polarization plane is 0 degrees when an absorption peak wavelength of an absorption spectrum that is measured is the longest wavelength, defined as $\lambda 1$, when the azimuth is gradually increased from 0 degrees, a value of the absorption peak wavelength shifts to the short wavelength side in accordance with the increase and when the azimuth is 90 degrees, a value of the absorption peak is the shortest wavelength, defined as $\lambda 2$, satisfying a relation of $(\lambda 1 - \lambda 2) = 10$ to 50 nm, these properties are presumed to be inherent since Hikmet, as evidenced by Thomas, teaches the claimed polarizer as described above. Furthermore, Hikmet teaches that the organic matrix is synthesized from liquid crystalline monomers which have at least one acryloyl group and a nematic liquid crystal phase (acrylates C5A and C6M, column 5, lines 25-28, C5A and C6M, column 2, lines 25-27, Fig. 1), which are the same as or contain the same functional characteristics as the liquid crystal monomer having one acryloyl group and a nematic liquid crystal phase that is disclosed by Applicant (Example 3, specification, page 56, lines 15-20). Where the claimed and prior art products are identical or substantially identical in structure and composition, or are produced by identical or substantially identical processes, a prima facie case of either anticipation or obviousness has been established, and the claimed properties are presumed to be inherent. See MPEP 2112.01. If there were to be any differences in structure or chemistry, these differences are presumed to be minor and obvious in the absence of evidence to the contrary.

Regarding claim 13, Hikmet teaches that the organic matrix is formed with a liquid crystalline material (acrylates C5A and C6M, column 5, lines 25-28, C5A and C6M, column 2, lines 17-27, Fig. 1).

Regarding claim 14, Hikmet teaches that the liquid crystalline material is uniaxially aligned (uniaxial orientation of the molecules induced, column 5, lines 25-30).

Regarding claim 15, Hikmet teaches that the liquid crystalline material is a liquid crystal polymer (polymerized film, column 5, lines 45-50).

Regarding claims 27-28, Hikmet, as modified by Kawazu, teaches that the aspect ratio of the fine gold or silver metallic particles is 1.2, as discussed above, which means that the fine metallic particles are not aligned within the liquid crystalline polymer material matrix due to their substantial lack of sufficient uniaxial shape anisotropy, as defined in Applicant's specification (aspect ratio is less than 1.5, page 14).

10. Claims 12, 24-25 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hikmet in view of Kawazu, as applied to claims 4-10, 13-15, 27-28 above, and further in view of Oshima (US 4,268,127).

Hikmet, as modified by Kawazu, teaches the polarizer in which fine metallic particles is dispersed in an organic matrix formed with a liquid crystalline materials, as described above.

Regarding claim 12, Hikmet teaches that the liquid crystalline material is uniaxially stretched (uniaxial orientation of the molecules induced, column 5, lines 25-30) and that the liquid crystalline material is a liquid crystal polymer (polymerized film, column 5, lines 45-50) which is translucent. Hikmet is silent regarding the amount of

light transmittance of the translucent liquid crystal polymer when measured with a thickness of 1 mm.

However, Oshima teaches that the light transmittance of a translucent polymer that forms polarizing films (transparent or semi-transparent resin, column 1, lines 62-65) is preferably within the range of at least 70% (column 2, lines 32-37), which contains the claimed range of 88% or more, for the purpose of providing the desired polarized light transmittance.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made, to have provided a translucent liquid crystal polymer with a light transmittance that is within the range of 88% or more, as the translucent liquid crystal polymer in the polarizer of Hikmet, in order to obtain the desired polarized light transmittance, as taught by Oshima.

Regarding claims 24-25, Hikmet is silent regarding the content and hence amount of the fine metallic particles dispersed in the matrix.

However, Oshima teaches that a content of fine metallic particles (metal powder, column 2, lines 65-68, particle diameter about 0.01 µ = 10 nm, column 3, lines 2-6) of about 0.3 to 30 parts by weight relative to 100 parts by weight of the matrix materials (mixed into the synthetic resin, % by weight, column 3, lines 2-9), which overlaps the claimed range of 0.1 to 10 parts by weight, wherein the matrix materials are light transmissive (transparent synthetic resin, column 2, lines 63-65), provides a favorable polarizing efficiency (column 3, lines 5-15).

Therefore, since Hikmet is silent regarding the content of fine metallic particles dispersed in the matrix, it would have been necessary and hence obvious to have looked to the prior art for suitable amounts. As such, it would have been obvious to one of ordinary skill in the art at the time the invention was made, to have provided a content of fine metallic particles dispersed in the matrix of the polarizer of Hikmet that is within the range of 0.1 to 10 parts by weight relative to 100 parts by weight of the matrix materials, in order to provide the desired polarizing efficiency, as taught by Oshima.

Response to Arguments

11. Applicant's arguments have been considered but are moot in view of the new ground(s) of rejection.

Any inquiry concerning this communication should be directed to Sow-Fun Hon whose telephone number (571)272-1492. The examiner can normally be reached Monday to Friday from 10:00 AM to 6:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Keith Hendricks, can be reached on (571)272-1401. The fax phone number for the organization where this application or proceeding is assigned is (571)273-8300.

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/Sophie Hon/

Sow-Fun Hon

/KEITH D. HENDRICKS/
Supervisory Patent Examiner, Art Unit 1794